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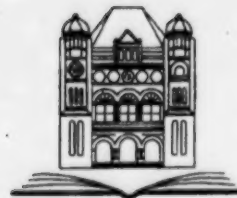
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## INTENSIVE HOG FARMING AND THE ENVIRONMENT

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## INTRODUCTION

This Backgrounder outlines several issues related to environmental and other impacts of large-scale hog farming, and reports on regulatory initiatives in Ontario and other provinces.

## BACKGROUND

### The Industry in Ontario

Pork production has long been an important economic component of Ontario agriculture. In 1998, over 5.6 million hogs were marketed in the province, second only to production in Quebec. However, the industry has been evolving. The number of Ontario farms with pigs declined from 18,622 in 1976 to 6,777 in 1996, while the average number of pigs per farm rose from 103 to 418 over the same twenty-year period. In fact, the 2% of very large farms, with over 2,653 pigs, were responsible for 23% of Ontario's pigs in 1996. The trend toward larger, more efficient hog farms is evident.<sup>1</sup>

### Rising Concerns

The Ontario Ministry of Agriculture, Food and Rural Affairs has noted rising concern regarding new or expanding swine facilities. These operations have higher concentrations of buildings, livestock and manure. Concerns have resulted, in some areas, in complaints, proactive citizens' groups and proposed restrictive by-laws.<sup>2</sup>

Public reaction to new and expanding swine facilities has taken many forms. The Ministry may receive calls about a new "factory farm" being built nearby. Concerns often relate to odours, noise, water quality, impacts on wells, and to how the facilities will change lifestyles and neighbourhoods.<sup>3</sup>

## ENVIRONMENTAL AND SOCIAL BENEFITS

Aside from the conventional economic benefits from large hog farming operations, pork producers point to environmental and other benefits that accrue from modern techniques. These include:<sup>4</sup>

- **Waste Reduction** – Pork production makes use of by-products from milk processing, soybeans, canola, corn and wheat, along with those from brewing and distilling that cannot be used for human consumption yet provide protein in a hog's diet. These would otherwise end up in landfills.
- **Surplus Feed Grains** – Those unsuitable for human consumption are a major source of feed for pigs. As well, surplus grain that is not sold or exported supports hog production.
- **Pork By-products** – Virtually every part of the animal is used for medical products, and manufacture of a broad range of consumer products.

- **Manure Recycling** – When properly managed, manure from hogs provides important natural fertilisers and soil conditioners for lands used to grow crops to feed the hogs or to be sold.

## ENVIRONMENTAL AND SOCIAL CONSEQUENCES

Environmental and other concerns have gained a high profile in Huron County, where large hog operations have led to complaints from cottagers and other land users. Similar issues have surrounded large producers in North Carolina, Maryland and other jurisdictions.

The U.S. Environmental Protection Agency (EPA) recently completed a review of the environmental impacts of animal feeding operations.<sup>5</sup> EPA reported that 20% of agricultural impairment of rivers, lakes and estuaries might be attributed to intensive animal operations. Major complaints related to impaired shellfish areas, waste spills, excessive runoff, leaking storage lagoons and odour problems.

Manure was cited as the primary source of pollution. Impacts include:<sup>6</sup>

- **Surface Water** – wastes' oxygen demand and ammonia can result in fish kills and reduced biodiversity. Nutrient enrichment and elevated turbidity are also common. Health can be impacted by pathogens and nitrogen from animal wastes. Trace elements and salts can disrupt aquatic ecosystems. Antibiotics, pesticides and hormones may have low-level, long-term ecosystem effects.
- **Ground Water** – pathogens, nitrates and leaching salts can contaminate wells. Nitrate is the most widespread agricultural contaminant in drinking water wells.
- **Soils** – trace elements and salts from land-applied manure can accumulate and become toxic to plants and enter the food chain.
- **Air** – emissions from anaerobic waste decomposition are particularly offensive, and these gases contribute to global warming. Further, volatilised ammonia can be redeposited on the earth and contribute to enrichment of surface waters.

The Ontario Ministry of Agriculture, Food and Rural Affairs provides advice on environmental planning and conflict resolution techniques to assist farmers in reducing these negative impacts, and communicating with rural neighbours and decision makers about these issues.<sup>7</sup>

The Environmental Defence Fund is an interest group that has been very vocal about the negative aspects of hog farming, particularly "industrial farm operations." Their *Hogwatch* Internet site provides a wide range of material on this theme.<sup>8</sup>

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## REGULATION IN CANADIAN PROVINCES

Agriculture and Agri-Food Canada provides a useful listing of provincial farming codes of practice, guidelines and standards on the Internet.<sup>9</sup> As well, the Canadian Pork Council has developed a *Canadian Code of Practice for Environmentally Sound Hog Production*, which may be of interest.<sup>10</sup>

The following sections lead interested readers to relevant environmental control documents across Canada.

### British Columbia

BC's Ministry of Agriculture and Food produces fact sheets on regulation of manure use and other aspects of large-scale livestock production.<sup>11</sup> BC's Agricultural Waste Control Regulation, which includes the Code of Agricultural Practice for Waste Management, provides the regulatory framework.

### Alberta

Alberta's regulatory strategy includes proposed standards for intensive livestock operations and a proposed regulatory framework for livestock feeding operations. Also available are a discussion of Alberta's regulatory options for livestock operations and a description of the current *Code of Practice for the Safe and Economic Handling of Animal Manures*. These documents give a concise appreciation for the issues being discussed and the approach being used to develop a new management strategy for Alberta's hog producers.

Alberta probably is more advanced than other Canadian jurisdictions when it comes to these issues, and may provide the most useful guidance for those examining Ontario's situation. Alberta has also produced a summary of regulation of intensive livestock elsewhere in North America.<sup>12</sup>

### Saskatchewan

Saskatchewan's review and approval process is described in *Information Guidelines for the Approval of Intensive Hog Operations and Guidelines for Establishing and Managing Livestock Operations*.<sup>13</sup>

Also useful is a report that reviews *Expanding Intensive Livestock Operations in Saskatchewan: Environmental and Legal Constraints*.<sup>14</sup>

### Manitoba

Manitoba Agriculture and Food produces *Farm Practices Guidelines for Hog Producers in Manitoba*.<sup>15</sup> This document reviews Manitoba's provincial and municipal regulatory system in light of intensive farming activities. It's emphasis on the municipal planning process with respect to livestock production may be of particular interest when considering possible approaches to managing these issues in Ontario.

Also relevant is the Manitoba Livestock Manure Management Initiative Inc., an industry-driven group to fund research and development of improved manure handling techniques.<sup>16</sup>

### **Nova Scotia**

The *Environmental Regulations Handbook for Nova Scotia Agriculture* is relevant to livestock production.<sup>17</sup> Also included are Nova Scotia's *Odour Control Guidelines for Livestock Operators*.<sup>18</sup>

### **Prince Edward Island**

PEI's *Guidelines for Manure Management* are available at the Internet site of the Agriculture Ministry.<sup>19</sup>

### **New Brunswick**

N.B. Agriculture & Rural Development has produced *Manure Management Guidelines*.<sup>20</sup>

### **UNITED STATES**

While I have not attempted a comprehensive review of American regulatory efforts, the following web pages provide an introduction to initiatives of the Environmental Protection Agency and the Department of Agriculture:

USDA-EPA Unified National Strategy for Animal Feeding Operations;  
<http://cleanwater.gov/afo/>

Concentrated Animal Feeding Operations (CAFOs);  
<http://www.epa.gov/owmitnet/cafo.htm>

Management measures to protect coastal waters from agricultural sources of nonpoint pollution; <http://www.epa.gov/docs/owowwtr1/NPS/MMGI/Chapter2/index.html>

The Environmental Defence Fund's *Hogwatch* site is activist in orientation, but does have useful links to state resources about intensive farming, particularly in North Carolina and Minnesota. <http://www.hogwatch.org/>

The complete text of a December 1998 report published by the Natural Resources Defense Council and the Clean Water Network. It examines the environmental and health consequences of pollution from industrial livestock farms in 30 states, as well as the widely varying efforts to curtail it.  
<http://www.nrdc.org/nrdcpro/factor/aafinx.html>

Major North Carolina Laws Related To Factory Hog Farms;  
[http://www.hogwatch.org/resourcecenter/nc\\_hoglaws.html](http://www.hogwatch.org/resourcecenter/nc_hoglaws.html)



Feedlots in Minnesota; <http://www.pca.state.mn.us/hot/feedlots.html>

<http://www.mda.state.mn.us/docs/agdev/MANURE.HTM#PERMITS>

Here is a state-by-state tabular comparison of animal manure regulations;  
<http://www.pca.state.mn.us/hot/fl-statecomp.html>

## **CONCLUDING REMARKS**

As hog production facilities become larger and more productive, their potentials for environmental and social impacts also rise. Much progress has been made in developing new codes of practice and regulatory tools. Municipal and rural planning processes will need to adjust to the new realities in order to resolve potential and actual conflicts among rural land uses and land users.

## NOTES

<sup>1</sup> Statistics Canada data available at the Canadian Pork Council Internet site at <http://www.canpork.ca/stats.html> accessed on 1 October 1999.

<sup>2</sup> Ontario, Ministry of Agriculture, Food and Rural Affairs, *The Rising Concern in Rural Ontario Regarding Swine Production*, available at the Ministry's Internet site at <http://www.gov.on.ca/OMAFRA/english/livestock/swine/facts/concern.htm> accessed on 20 October 1999.

<sup>3</sup> Ibid.

<sup>4</sup> *Just the Facts about Pork Production in Canada*, available on the Canadian Pork Council's Internet site at <http://www.canpork.ca/facts.html> accessed on 1 October 1999.

<sup>5</sup> United States, Environmental Protection Agency, Office of Water, Standards and Applied Sciences Division, *Environmental Impacts of Animal Feeding Operations*, Washington: the Agency, 1998, p. 1.

<sup>6</sup> Ibid.

<sup>7</sup> Examples may be found at the Ministry of Agriculture, Food and Rural Affairs' Internet site. Useful pages include:

<http://www.gov.on.ca/omafra/english/livestock/swine/manure.html>; and

<http://www.gov.on.ca/OMAFRA/english/livestock/swine/housing.html>.

<sup>8</sup> The Hogwatch Internet site at <http://www.hogwatch.org/>.

<sup>9</sup> Internet site at <http://res.agr.ca/manurenet/en/codes.html> accessed on 7 January 2000. Additional links related to intensive livestock operations may be found at Internet site <http://res.agr.ca/manurenet/en/ilo.html>.

<sup>10</sup> This document was available at the Canadian Pork Council's Internet site at <http://www.canpork.ca/codeecon.html> accessed on 7 January 2000.

<sup>11</sup> Examples can be seen at the Ministry's Internet site, including: <http://www.agf.gov.bc.ca/resmgmt/fppa/refguide/activity/manure.htm>.

<sup>12</sup> This report was available at Alberta Agriculture, Food and Rural Development's Internet site at <http://www.agric.gov.ab.ca/archive/ilo> accessed on 25 February 2000.

<sup>13</sup> Available at the Saskatchewan Agriculture and Food Internet site at <http://www.agr.gov.sk.ca/livestock/pigs/regulations/hogops.asp> accessed on 25 February 2000.

<sup>14</sup> The entire report was available at the AgriCarta Internet site at <http://www.aginonet.com/agricarta/content/csale/paper3/contents.html> accessed on 7 January 2000.

<sup>15</sup> These guidelines were available at the Ministry's Internet site at <http://www.gov.mb.ca/agriculture/livestock/pork/swine/bah00s00.html> accessed 7 January 2000.

<sup>16</sup> Internet site at <http://www.manure.mb.ca>.

<sup>17</sup> Internet site at <http://agri.gov.ns.ca/rs/envman/educate/handbook.htm>.

<sup>18</sup> Internet site at <http://agri.gov.ns.ca/rs/greenplan/waste/004.htm>.

<sup>19</sup> Internet site at

<http://www2.gov.pe.ca/af/agweb/library/documents/manureguide/land.asp>.

<sup>20</sup> These are available at Internet site <http://inter.gov.nb.ca/agricult/20/10/2010005e.htm>.